

REMARKS

The Examiner is thanked for the thorough examination and search of the subject patent application and for finding patentable material in the claims.

Claims 11-13, 15, 17, 19-20, 23-25, 42-58, 60-71, 73-74, 102-107, 109-111, 117-121, 123-129, 131-141, 143-188 are pending, wherein Claims 11, 17, 42, 45, 52, 56, 63, 69, 102, 105, 117, 127, 134 and 138 have been currently amended, Claims 1-10, 14, 16, 18, 21-22, 26-41, 59, 72, 75-101, 108, 112-116, 122, 130 and 142 have been canceled, and Claims 146-188 have been newly added.

The newly added dependent claims are supported in the Specification on page 11 (substrate and opening claims) and on page 13 (UBM layer claims).

Response to Claim Objection

The last character of "s" in the word of "balls" shown in line 7 of claim 11 has been deleted in the preliminary amendment previously submitted Nov. 8, 2005. Withdrawal of the Claim Objection is respectfully requested.

Response to Claim Rejections under 35 U.S.C. 103

Applicants respectfully traverse the rejections for at least the reasons set forth below.

Response to Claims 63, 65, 66, 68 and 71

Reconsideration of Claims 63, 65, 66, 68 and 71 rejected under 35 U.S.C. 103(a) as being unpatentable over Gaynes et al. (US 6,165,885) is requested based on the following remarks.

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As currently amended, independent claim 63 is recited below:

63. A method of fabricating an electronic package comprising the steps of:
 joining a die and a substrate, wherein an opening in said substrate exposes a
topmost patterned circuit layer of said die; and
 depositing a conductive material into said opening, wherein said conductive material is
used to connect said topmost patterned circuit layer to an external circuitry.

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Applicants respectfully assert that the method claimed in claim 63 patentably distinguishes over the citation by Gaynes et al. (US 6,165,885).

Gaynes et al. teach that a method for forming an electronic package comprises joining a wafer and a substrate. ~ See Steps 100 and 120 in FIG. 1, lines 58-61, col. 10, line 66, col. 12 through line 2, col. 13, and lines 18-20, col. 16 ~ However, Gaynes et al. fail to teach, hint or suggest the step of joining a die, but not a wafer, and a substrate, which is claimed in claim 63.

The Examiner considers that "With respect to the limitation of joining the substrate with the die, while there no requirement in the claim that the die be separated one from another before joining with the substrate, it has been held that the selection of any order of process steps is prima facie obvious in the absence of new or unexpected results". ~ See lines 1-4 in the third

paragraph of page 3 in the last Office Action mailed Dec. 16, 2005 ~ Applicants respectfully traverse the Examiner's opinion. "Die" is typically well-known as a body separated from "Wafer". The wordings of "Die" and "Wafer" are unambiguous to those skilled in the art. The step of "joining a die and a substrate" claimed in Claim 63 means "joining a die, after it is separated from a wafer, and a substrate". The step of "joining a wafer and a substrate" taught by Gaynes et al means "joining a wafer, before separating it into multiple dies, and a substrate". Applicants believe that those skilled in the art would not come up with the subject matter claimed in claim 63 because Gaynes et al. fails to teach the step of joining a die and a substrate, but teaches the step of joining a wafer and a substrate.

Gaynes et al. teaches that "In step 128 the wafer is diced into a plurality of integrated computer chips. This step may be performed anywhere in the process of FIG. 1, but preferably done at the end to allow the entire wafer to be simultaneously processed in the method of the invention" ~ *See lines 46-50, col. 17* ~ Even though Gaynes et al. teaches that the step of dicing may be performed at any point in the process, Gaynes et al. fails to teach, hint or suggest the detailed packaging steps if the step of dicing the wafer is not performed at the end. There are so many choices to put step 128 between steps 100 and 102, steps 102 and 104, steps 104 and 106, steps 106 and 108, steps 108 and 110, steps 110 and 112, steps 112 and 114, steps 114 and 116, steps 116 and 118, steps 118 and 120, steps 120 and 122, steps 122 and 124, or steps 124 and 126. Based on Gaynes's vague disclosure, those skilled in the art should not immediately think of other possible steps if step 128 is not performed at the end.

The Examiner considers that “one having ordinary skill in the art would be familiar with each of the steps performed by Gaynes et al. Although each minor detail of processing is not disclosed, the disclosure of Gaynes et al. is enabling for one having ordinary skill in the art.” ~ *See lines 2-5 in the first paragraph of page 6 in the last Office Action mailed Dec. 16, 2005* ~ However, applicants consider that the Gaynes et al’s statement is of the type that gives only general guidance and is not at all specific as to the particular method of the claimed invention and how to achieve it. Such a suggestion may make an approach “obvious to try” but it does not make the invention obvious. ~ *Id. at 1065 (citing In re O’Farrell, 853 F.2d 894, 7 USPQ 2d 1673, 1681 (Fed. Cir. 1988))* ~

For at least the foregoing reasons, applicants respectfully submit independent claim 63 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent claims 64-71, 73-74 and 162-168 patently define over the prior art as well.

Response to Claims 127-129 and 131-133

Reconsideration of Claims 127-129, 132 and 133 rejected under 35 U.S.C. 103(a) as being unpatentable over Gaynes et al. (US 6,165,885) is requested based on the following remarks.

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As currently amended, independent claim 127 is recited below:

127. A method of fabricating an electronic package comprising the steps of:
 providing a die comprising a pad and a passivation layer, an opening in said passivation layer exposing said pad; and
 joining said die and a substrate, an opening in said substrate exposing said pad.

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Applicants respectfully assert that the method claimed in claim 127 patentably distinguishes over the citation by Gaynes et al. (US 6,165,885).

Gaynes et al. teach that a method for forming an electronic package comprises joining a wafer and a substrate. ~ *See Steps 100 and 120 in FIG. 1, lines 58-61, col. 10, line 66, col. 12 through line 2, col. 13, and lines 18-20, col. 16* ~ However, Gaynes et al. fail to teach, hint or suggest the step of joining a die, but not a wafer, and a substrate, which is claimed in claim 127.

The Examiner considers that “With respect to the limitation of joining the substrate with the die, while there no requirement in the claim that the die be separated one from another before joining with the substrate, it has been held that the selection of any order of process steps is prima facie obvious in the absence of new or unexpected results”. ~ *See lines 1-4 in the third paragraph of page 3 in the last Office Action mailed Dec. 16, 2005* ~ Applicants respectfully traverse the Examiner’s opinion. “Die” is typically well-known as a body separated from “Wafer”. The wordings of “Die” and “Wafer” does not make those skilled in the art confused. The step of “joining a die and a substrate” claimed in Claim 63 means “joining a die, after separated from a wafer, and a substrate”. The step of “joining a wafer and a substrate” taught by Gaynes et al means “joining a wafer, before separated into multiple dies, and a substrate”. Applicants consider that those skilled in the art should not think up the subject matters claimed in claim 127 because Gaynes et al. fail to teach the step of joining a die and a substrate, but teach the step of joining a wafer and a substrate.

Gaynes et al. teach that “In step 128 the wafer is diced into a plurality of integrated computer chips. This step may be performed anywhere in the process of FIG. 1, but preferably done at the end to allow the entire wafer to be simultaneously processed in the method of the invention” ~ *See lines 46-50, col. 17* ~ Even though Gaynes et al. teach that the step of dicing may be performed at any point in the process, Gaynes et al. fail to teach, hint or suggest the detailed packaging steps if the step of dicing the wafer is not performed at the end. There are so many choices to put step 128 between steps 100 and 102, steps 102 and 104, steps 104 and 106, steps 106 and 108, steps 108 and 110, steps 110 and 112, steps 112 and 114, steps 114 and 116, steps 116 and 118, steps 118 and 120, steps 120 and 122, steps 122 and 124, or steps 124 and 126. Based on Gaynes’s vague disclosure, those skilled in the art should not immediately think of other possible steps if step 128 is not performed at the end.

The Examiner considers that “one having ordinary skill in the art would be familiar with each of the steps performed by Gaynes et al. Although each minor detail of processing is not disclosed, the disclosure of Gaynes et al. is enabling for one having ordinary skill in the art.” ~ *See lines 2-5 in the first paragraph of page 6 in the last Office Action mailed Dec. 16, 2005* ~ However, applicants consider that the Gaynes et al’s statement is of the type that gives only general guidance and is not at all specific as to the particular method of the claimed invention and how to achieve it. Such a suggestion may make an approach “obvious to try” but it does not make the invention obvious. ~ *Id. at 1065 (citing In re O’Farrell, 853 F.2d 894, 7 USPQ 2d 1673, 1681 (Fed. Cir. 1988))* ~

For at least the foregoing reasons, applicants respectfully submit independent claim 127 patently distinguishes over the prior art references, and should be allowed. For at least the same reasons, dependent claims 128, 129, 131-133 and 181-184 patently define over the prior art as well.

Response to Allowable Subject Matter

Claim 42 was not mentioned in the last Office Action mailed Dec. 16, 2005. Applicants consider that claim 42 is supposed to be allowed due to no rejection as being unpatentable.

Independent claims 42, 52, 102, 117 and 134 have been amended. Reconsiderations for allowable subject matters to claims 42-58, 60-62, 102-107, 109-111, 117-121, 123-126, 134-141, 143-145, 151-161, 169-180 and 185-188 are respectfully requested.

CONCLUSION

Some or all of the pending claims are believed to be in condition for Allowance, and that is so requested.

It is requested that should Examiner Owens not find that the Claims are now Allowable that he call the undersigned at 845 452-5863 to overcome any problems preventing allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'SBA', with a stylized flourish extending from the end.

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